

those who had described the species up to the *Passeriformes*. I now give the names of those who have described the species in the *Passeriformes*:—Gould, 123; Latham, 43; Vigors and Horsfield, 17; Vieillot, 12; Mathews, Quoy and Gaimard, 11; Ramsay, 7; North, 6; Gmelin, Temminck, Shaw, and Swainson, 5; De Vis, 4; Gray, Lewin, Lesson, Linné, and White, 3; Ashby, Hartert, Jardine and Selby, Lesson and Garnot, M'Coy, Milligan, Reichenbach, Salvadori, Sharpe, Shaw and Nodder, and Stephens, 2; Campbell, Castelnau and Ramsay, Bechstein, Bonaparte, Daudin, Drapiez, Dumont, Hall, Hartlaub, Hombron and Jacquinot, Iredale, Jardine, King, Kittlitz, Masters, Müller, Paykull, Rüppell, Weatherill, and White, 1 each.

The following list of describers of Australian species includes about 668 species, but is subject to alteration, and is not claimed as final:—Gould, 188; Latham, 81; Gmelin, 35; Linné, 34; Temminck, 30; Vieillot, 28; Vigors and Horsfield, 26; Mathews, 16; Gray, 14; Quoy and Gaimard, 13; Lesson, Shaw and Nodder, 9; Jardine and Selby, Kuhl, and Swainson, 8; Boddaert, and Ramsay, 7; North, Shaw, Stephens, and White, 6; Horsfield, 5; Bechstein, Bonaparte, De Vis, Forster, Müller, and Pallas, 4; Collett, Eyton, Lewin, M'Coy, Salvadori, Scopoli, Vroeg, and Wagler, 3; Ashley, Brünnich, Daudin, Dumont, Garnot, Hartert, Kerr, Lear, Lesson and Garnot, Lichenstein, Milligan, Raffles, Reichenbach, and Sharpe, 2; Bosc, Boie, Campbell, Castelnau and Ramsay, Cuvier, Clark, Drapiez, Dietrichsen, Du Bus, Desmarest, Gueldenstadt, Gunnerus, Hall, Hartlaub, Hombron and Jacquinot, Hilsenberg, Iredale, Jardine, Jameson, Jerdon, King, Kittlitz, Masters, Montagu, Miller, Middendorff, Oustalet, Paykull, Perry, Peal, Rüppell, Rothschild, Robinson, Smith, Swinhoe, Salvin, Turnstall, Thunberg, Vigors, Weatherill, Wallace, and White (H. L.), 1 each.

Breeding of Bustards.

By A. H. CHISHOLM, STATE SECRETARY R.A.O.U., BRISBANE.

It seems a curious dispensation of Providence that the Australian Bustard (*Choriotis australis*) and the Native Companion (*Antigone australasiana*) should be severely restricted in their egg-producing ability, while other large inland ground-breeding birds, such as the Emu, the Brush-Turkey, the Mallee-Fowl, and the Scrub-Fowl, are all very fertile. In the case of the Emu, and to a lesser extent in the case of the Cassowary (which is protected by its jungle environment), inability to fly seems sufficient reason for prolific breeding, but this consideration does not hold good in regard to the mound-builders. And yet the large clutches of the latter birds' eggs are much more screened than the limited ones of the Plain Turkey. Certainly, at all events, Nature did not anticipate the introduction of the pestiferous fox when fixing the breeding habits of the Bustard.

"Great have been the arguments whether the Bustard lays one or more eggs," writes Mr. A. J. Campbell in "Nests and Eggs." It was the same veteran ornithologist who introduced a discussion on the subject at a meeting of the R.A.O.U. at the Melbourne Museum in January. As a result of this discussion I have been interested in collecting observations upon the subject in Queensland, where the noble species is still plentiful. From these it would seem that if this fine Australian bird is (or was) usually restricted to one egg to the clutch in the south, such is not the case in the north.

Mr. P. A. Tarrant (Brisbane) writes:—"With reference to the Plain Turkey, I have always understood that this bird lays two eggs to a clutch, and I remember three specific instances at Croydon (N.Q.) to bear this out. On two distinct occasions I surprised two chicks with their mothers, and once I dropped upon the female sitting on two eggs. These eggs were on the ground, in a small, bare patch surrounded by tall grass. When visiting the locality later the eggs had been hatched. In the Gulf country Turkeys breed from January to April, but, as with the Black Duck, a good deal depends upon the season—an early 'wet' means an early breeding, and a late wet season a late breeding. I have seen, on occasions," adds Mr. Tarrant, "large numbers of Turkeys, generally during March and April, flying from south to north. The flight would be from just after daylight until 8 a.m., and would be resumed again from 5 p.m. until dusk. These birds were found to be very poor in condition, and I have no doubt they were forced to leave the dry Downs country for the more favoured Gulf. It is very likely they found their way back again when conditions were more favourable."

Mr. T. M. Pitt, of Pittsworth (Darling Downs), after stating that on more than one occasion he has seen two Plain Turkeys' eggs, or two young birds, tells this interesting story:—"On 23rd December, 1873, when at a cattle muster on Boondoo Station, Balonne River, about 80 miles below St. George, I saw a Turkey get up, and I picked up two eggs. These I gave to Mr. Adolphus Tuckerman, manager of the station, who took them home and put them on the dining table. Mr. Tuckerman left the following morning for St. George. He was away for a few days, and, as he was a bachelor, the house was pretty well shut up during the time. The stockman's wife was surprised one day to see two young Turkeys walking about on the table. The weather was dry and very hot at the time."

Further interesting notes regarding the breeding of the Bustard come from Mr. E. R. Caldwell, R.A.O.U., of Charleville, who states that many bushmen claim that two eggs are more often found to the clutch than one egg. "In the eighties," continues Mr. Caldwell, "these birds used to come in droves on to the hot plains of Northern Victoria, but it was not until I came to Queensland that I had the opportunity of finding a nest. In a paddock of mine on the Darling Downs a pair nested for three or four years

without result in a belt of gum timber, on the edge of a small plain, about six chains from the bank of the Condamine River and 600 yards from my house. Two brownish eggs were laid on the bare ground (for no nest is made), but owing to some farming operations the sitting bird was unavoidably disturbed for an hour or two, giving the ever-watchful 'Kelly' (the Crow) his chance, and the two eggs were carried away. Not dismayed, the Turkey laid two more eggs a few yards from the old spot; but disaster came along again in the shape of some mischievous young cattle that amused themselves chasing the sitting bird. One morning I noticed a change in the old order of things, and found the cattle bolting for their lives, with the Turkey with outstretched wings in pursuit. Upon this change of attitude I felt certain that young birds had appeared, so I rode down purposely and found the bird on the nest. It proved so quiet that it allowed my horse to stand within a yard for several minutes, and only flew off when the horse became restive with fly worry. One of the eggs had been broken by the cattle, and in a day or two the nest was deserted, so I took the remaining egg. In the following year two birds reappeared, and two more eggs were laid near the original nesting-place; but in a few days the birds were missed, and, looking at the nest, I found the eggs had gone, with nothing but wing and other feathers left to tell the tale. Reynard had arrived, and had come so quickly that the hundreds of kangaroo rats that infested the district were cleaned up in a few months.

"No Bustards ever nested again in that paddock," continues Mr. Caldwell. "Indeed, it is doubtful whether, during the last five years, any Plain Turkeys have been reared on the vast plains between Dalby and Pittsworth—once, and not long ago, the home of thousands of these fine birds. Grass-fires must destroy many young and eggs that the foxes happen to miss, and I think it will only be a short time before the birds get out and remain in the back country. All game-birds out in these parts seem unduly shy, and I think the fox is responsible. Curlews, usually common everywhere, are seldom heard with their melancholy wail at night. Ducks also suffer terribly from the depredations of Reynard—in fact, all ground birds are faced with extermination. Something will have to be done in the near future in the way of netted sanctuaries, and Dillalah State Station, once cleared of dingoes, foxes, and rabbits, would be an ideal property for the purpose."

Mr. Caldwell adds that during the last mice plague on the Darling Downs he opened the crops of two Bustards that had been shot, and took from each a large double handful of masticated mice. Further indication of the economic value of the bird is given in a note from Mr. H. F. Jones, who has frequently noted the ravages of Turkeys among grasshoppers in the Gulf country.